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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/749,865	12/27/2000	Noriyuki Hirayanagi	4641-56502	7443

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03/12/2003

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EXAMINER

KACKAR, RAM N

ART UNIT

PAPER NUMBER

1763

DATE MAILED: 03/12/2003

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/749,865

Applicant(s)

HIRAYANAGI ET AL.

Examiner

Ram N Kackar

Art Unit

1763

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 31 January 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☐ Claim(s) 1-46 is/are pending in the application.
- 4a) Of the above claim(s) 7-14, 18-37 and 43-46 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6, 15-17, 38-40 and 42 is/are rejected.
- 7) ☒ Claim(s) 41 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s) _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 3 6) ☐ Other: _____

DETAILED ACTION

1. An error was found in the restriction requirement. Because of this error, a claim dependent upon an elected independent claim was left out and two claims dependent upon an unelected independent claim were included. The claims were therefore amended. Authorization for this amendment was given in a telephone interview with Donald L Stephens Jr on 3/3/2003.

The application has been amended as below.

Added claim 42 to the group of elected claims.

Removed claims 44 and 46 from the group of elected claims.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-6 and 15-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Matsuda et al (US 6254683) in view of Parkhe (US 6033482).

Matsuda et al disclose a substrate holding device comprising an electrostatic chuck (Fig 2), and a channel at the back side of wafer (Fig 2 102 and 103 and column 1 lines 54-56), a helium gas supply conduit (Fig 2-116) gas evacuation conduit (115) and valves to control the flow of helium gas to the channel (115, 140, 141).

Matsuda et al also disclose the method of fabrication process including the back-side gas cooling (Col 1 line 66 to Col 2 line 46).

Matsuda et al do not explicitly disclose a controller configured to control all aspects of the system including fabrication process.

The fabrication processes using electrostatic chucks and helium back-side cooling demand precision and reliability and are therefore controlled electronically by controllers or computers.

Parkhe discloses one controller to control all aspects of fabrication including substrate back- side cooling (Fig 1-160).

Therefore it would have been obvious to use a controller like that of Parkhe to control the apparatus of Matsuda so as to ensure accuracy, reliability and higher through put.

Regarding claim 4 as the configured process step finishes at the end of process step its duration is at least 80% of process time.

Claims 6 and 16 are not patentable as being directed to an intended use. The controller as disclosed by Matsuda et al and improved by Parkhe would be capable of controlling the sequence of any process.

4. Claims 38-40 and 42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shamouilian et al (US 6320736) in view of Onishi et al (JP62136570).

Shamouilian et al disclose a substrate holding device comprising an electrostatic chuck (Fig 1), and a channel at the back-side of wafer (56a or 56b), a helium gas supply conduit (50) and a filter to remove impurities from heat transfer gas (Fig 5-60).

Shamouilian et al do not disclose the filter to be a cold trap.

Onishi et al discloses the use of cold trap to remove harmful gases from the exhaust gas to make it clean and recycle to the chamber and valve to isolate from chamber so as to remove the impurities by exhausting (abstract and Page 2 lines 9-22 translation in English).

Therefore it would have been obvious for one of ordinary skill in the art at the time invention was made to use a cold trap of Onishi et al in place of ordinary filter so as to make sure that moisture and impurities are removed from helium so as to have efficient heat transfer and keep the gas passages clean.

Allowable Subject Matter

5. Claim 41 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ram N Kackar whose telephone number is 703 305 3996. The examiner can normally be reached on M-F 8:00 A.M to 5:P.M.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory Mills can be reached on 703 308 1633. The fax phone numbers for the organization where this application or proceeding is assigned are 703 872 9310 for regular communications and 703 872 9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703 308 0661.

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March 7, 2003

Mr. 9
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